

WHAT IS CLAIMED IS:

1. A health management system for managing health of each user carrying a portable terminal, comprising:

a portable terminal which is arranged to be  
5 carried by a user and includes  
a display screen,  
radio communication means for accessing a  
predetermined radio communication network,  
storage means storing personal information  
10 of the user, and  
an input/output device for supporting  
health management for the user; and  
a database including  
personal information storage means storing  
15 the personal information about each user carrying said  
portable terminal,  
medical information storage means storing  
information about a medical facility, a drugstore, a  
medicine, and said input/output device; and  
20 communication means for communicating with  
said portable terminal through the radio communication  
network,  
wherein said radio communication means transmits  
part of the personal information stored in said storage  
25 means in starting to communicate with said database,  
and  
wherein said database includes

identification means for identifying the user of  
said portable terminal by collating the part of the  
information transmitted from said radio communication  
means with information stored in said personal

5 information storage means, and

emergency handling means which is activated upon  
transmission of a specific signal from said radio  
communication means for providing one of communication  
with a medical facility whose information is stored in  
10 said medical information storage means and information  
stored in said medicine information storage means,  
which is necessary for the identified user for said  
portable terminal, in accordance with information  
transmitted from said radio communication means and to  
15 provide said portable terminal.

2. The system according to claim 1, wherein the  
personal information includes information of a clinical  
chart of the user and prescription.

3. The system according to claim 1, wherein said  
20 radio communication means and said communication means  
perform encryption/decryption in accordance with a  
predetermined scheme in transmitting/receiving at least  
part of the personal information.

4. The system according to claim 1, wherein said  
25 portable terminal further comprises position  
information acquisition means for acquiring position  
information of said terminal, and said emergency

handling means displays information about a route to a  
suitable medical facility or drugstore on said display  
screen on the basis of the position information  
transmitted from said position information acquisition  
5 means.

5. The system according to claim 1, wherein said  
input/output device is an inhaler for discharging a  
medicine in the form of fine droplets to make the user  
inhale the droplets, and the information about said  
10 input/output device includes information about handling  
of said inhaler.

6. The system according to claim 1, wherein said  
emergency handing means communicates with an emergency  
facility when no information is transmitted a  
15 predetermined period of time after said emergency  
handling means is activated.

7. The system according to claim 1, wherein part of  
the information includes information about biometrical  
characteristics of the user.

20 8. A health management method of managing health of  
each user carrying a portable terminal, including the  
steps of:

providing a portable terminal carried by a user  
with a display screen, radio communication means for  
25 accessing a predetermined radio communication network,  
storage means storing personal information of the user,  
and an input/output device for supporting health

management for the user;

providing a database for communicating with each  
portable terminal with personal information storage  
means storing the personal information about each user  
5 carrying the portable terminal, medical information  
storage means storing information about a medical  
facility, a drugstore, a medicine, and the input/output  
device, and communication means for communicating with  
the portable terminal through the radio communication  
10 network;

transmitting part of the personal information  
stored in the storage means by the radio communication  
means when starting to communicate with the database;

identifying in the database, the user of the  
15 portable terminal by collating the part of the  
information transmitted from the radio communication  
means with information stored in the personal  
information storage means; and

providing one of communication with a medical  
20 facility whose information is stored in the medical  
information storage means and information stored in the  
medicine information storage means, which is necessary  
for the identified user for the portable terminal when  
a specific signal is transmitted from the radio  
25 communication means.

9. The method according to claim 8, wherein the  
personal information includes information of a clinical

chart of the user and prescription.

10. The method according to claim 8, wherein the radio communication means and the communication means perform encryption/decryption in accordance with a  
5 predetermined scheme in transmitting/receiving at least part of the personal information.

11. The method according to claim 8, wherein the portable terminal acquires position information of the terminal, and information about a route to a suitable  
10 medical facility or drugstore is displayed on the display screen on the basis of the position information.

12. The method according to claim 8, wherein the input/output device is an inhaler for discharging a medicine in the form of fine droplets to make the user  
15 inhale the droplets, and the information about the input/output device includes information about handling of the inhaler.

13. The method according to claim 8, wherein in the database, when no information is transmitted a  
20 predetermined period of time after a specific signal is transmitted from the radio communication means, communication is made to an emergency facility.

14. The method according to claim 8, wherein part of the information includes information about biometrical  
25 characteristics of the user.

15. A portable terminal which is arranged to be carried by a user including:

storage means storing personal information about the user, including information about a clinical chart of the user and prescription; and

an inhaler for discharging a medicine in the form  
5 of fine droplets and making the user inhale the droplets, including

discharging control means for controlling the inhaler in accordance with an inhalation profile of the user to discharge the medicine, thereby enabling the  
10 user to inhale the medicine in accordance with the information of the prescription.

16. The terminal according to claim 15, further comprising parameter setting means for setting a parameter for discharging control by measuring an  
15 inhalation profile of the user without discharging any medicine.

17. The terminal according to claim 16, wherein a medicine to be used and the parameter are stored in said storage means in association with each other.

20 18. The terminal according to claim 15, wherein said discharging control means includes a negative pressure sensor for detecting that the user starts inhaling.

19. The terminal according to claim 15, wherein the terminal further comprises input means, and allows said  
25 inhaler to be operated only when information stored in said storage means coincides with information input from said input means.

20. The terminal according to claim 15, wherein the terminal further comprises an authentication sensor for performing biometrical authentication with respect to the user, and allows said inhaler to be used only when  
5 information about a biometrical characteristic of the user stored in said storage means coincides with information from said authentication sensor.

21. The terminal according to claim 15, wherein a usage log of said inhaler is stored in said storage  
10 means.

22. The terminal according to claim 15, further comprising droplet detection means for monitoring discharged fine droplets of a medicine.

23. The terminal according to claim 15, further  
15 comprising administration time notification means for notifying the user of a scheduled administration time of the medicine.

24. The terminal according to claim 22, further comprising an administration end notification means for  
20 notifying the user that administration of the medicine is normally completed.

25. The terminal according to claim 15, wherein said storage means is a detachable memory card.

26. A control method for an inhaler for discharging a  
25 medicine in the form of fine droplets and making a user inhale the droplets, said inhaler being provided for a portable terminal which is arranged to be carried by a

user and including storage means storing personal information about the user, including information about a clinical chart of the user and prescription,

said method including the step of controlling the  
5 discharge of the medicine in accordance with an inhalation profile of the user, thereby enabling the user to inhale the medicine in accordance with the information of the prescription.

27. The method according to claim 26, wherein a  
10 parameter is set for discharging control by measuring an inhalation profile of the user without discharging any medicine.

28. The method according to claim 26, wherein a medicine to be used and the parameter are stored in the  
15 storage means in association with each other.

29. The method according to claim 26, wherein a negative pressure sensor is used to detect that the user starts inhaling.

30. The method according to claim 26, wherein input  
20 means is further provided for the portable terminal, and the inhaler is allowed to be operated only when information stored in the storage means coincides with information input from the input means.

31. The method according to claim 26, wherein an  
25 authentication sensor for performing biometrical authentication with respect to the user is further provided for the portable terminal, and the inhaler is



allowed to be used only when information about a biometrical characteristic of the user stored in the storage means coincides with information from the authentication sensor.

5 32. The method according to claim 26, wherein a usage log of the inhaler is stored in the storage means.

33. The method according to claim 26, wherein discharged fine droplets of a medicine are monitored.

34. The method according to claim 26, wherein the  
10 user is notified of a scheduled administration time of the medicine.

35. The method according to claim 33, wherein the user is notified that administration of the medicine is normally completed.

15 36. A computer program for implementing the inhaler control method by using a computer, said inhaler being provided for a portable terminal which is arranged to be carried by a user and including storage means storing personal information about the user, including  
20 information about a clinical chart of the user and prescription,

said computer program including program codes for implementing the step of controlling the discharge of the medicine in accordance with an inhalation profile  
25 of the user thereby enabling the user to inhale the medicine in accordance with the information of the prescription.

37. A storage medium for storing a program code for implementing the inhaler control method, said inhaler being provided for a portable terminal which is arranged to be carried by a user and including storage  
5 means storing personal information about the user, including information about a clinical chart of the user and prescription,

said storage medium storing the program codes for implementing the step of controlling the discharge of  
10 the medicine in accordance with an inhalation profile of the user, thereby enabling the user to inhale the medicine in accordance with the information of the prescription.

38. A health management system for managing health of  
15 each user carrying a portable terminal, comprising:

a portable terminal which is arranged to be carried by a user and includes

radio communication means for accessing a predetermined radio communication network,

20 storage means storing personal information of the user, and

an input/output device for supporting health management for the user;

a database including

25 personal information storage means storing the personal information about each user carrying said portable terminal,

medical information storage means storing information about a medical facility, a drugstore, a medicine, and said input/output device; and

communication means for communicating with  
5 said portable terminal through the radio communication network;

a medical facility terminal installed in each medical facility and connected to said database through a predetermined line; and

10 a drugstore terminal installed in each drugstore and connected to said database through a predetermined line,

wherein said database sets an access right for each item of information stored in said personal  
15 information storage means and medical information storage means with respect to each of said portable terminal, said medical facility terminal, and said drugstore terminal.

39. The system according to claim 38, wherein the  
20 personal information includes information of a clinical chart of the user and prescription.

40. The system according to claim 38, wherein said storage means is a detachable memory card, said medical facility terminal and said drugstore terminal have  
25 slots in which said memory card is inserted, and the personal information can be updated from each of said terminals only when said memory card is inserted in the

slot.

41. The system according to claim 38, wherein said input/output device is an inhaler for discharging a medicine in the form of fine droplets and making the user inhale the droplets, and the personal information includes information of the medicine administered by said inhaler.

42. The system according to claim 38, wherein said input/output device includes a measurement device for measuring a value indicating a physical condition of the user.

43. The system according to claim 38, wherein the personal information includes authentication data of each user, and access from said portable terminal to said database is permitted after personal authentication is performed on the basis of the authentication data.

44. The system according to claim 38, further comprising a pharmaceutical company terminal installed in a pharmaceutical company and connected to said database through a predetermined line.

45. A health management method of managing health of each user carrying a portable terminal using:

a portable terminal which is arranged to be carried by a user and includes radio communication means for accessing a predetermined radio communication network, storage means storing personal information of

the user, and an input/output device for supporting health management for the user;

a database including personal information storage means storing the personal information about each user carrying the portable terminal, medical information storage means storing information about a medical facility, a drugstore, a medicine, and the input/output device, and communication means for communicating with the portable terminal through the radio communication network;

a medical facility terminal installed in each medical facility and connected to the database through a predetermined line; and

a drugstore terminal installed in each drugstore and connected to the database through a predetermined line,

wherein said method comprises the step of setting an access right in the database, for each item of information stored in the personal information storage means and medical information storage means with respect to each of the portable terminal, the medical facility terminal, and the drugstore terminal.

46. The method according to claim 45, wherein the personal information includes information of a clinical chart of the user and prescription.

47. The method according to claim 45, wherein the storage means is a detachable memory card, the medical

facility terminal and the drugstore terminal have slots in which the memory card is inserted, and the personal information can be updated from each of the terminals only when the memory card is inserted in the slot.

5 48. The method according to claim 45, wherein the input/output device is an inhaler for discharging a medicine in the form of fine droplets and making the user inhale the droplets, and the personal information includes information of the medicine administered by  
10 the inhaler.

49. The method according to claim 45, wherein the input/output device includes a measurement device for measuring a value indicating a physical condition of the user.

15 50. The method according to claim 45, wherein the personal information includes authentication data of each user, and access from the portable terminal to the database is permitted after personal authentication is performed on the basis of the authentication data.

20 51. A portable terminal which is arranged to be carried by a user, including:

storage means storing personal information about the user, including information about a clinical chart of the user and prescription;

25 an inhaler for discharging a medicine in the form of fine droplets and making the user inhale the droplets; and

driving control means for changing a parameter associated with discharging of the medicine within a predetermined period of time in which the user executes the inhalation so as to enable the user to efficiently inhale the medicine in accordance with the information of the prescription.

52. The terminal according to claim 51, wherein the medicine is discharged in a plurality of steps within the predetermined period of time in which the inhalation is executed.

53. The terminal according to claim 51, further comprising a sensor for detecting an inhalation rate of the user, and said driving control means changes the parameter in accordance with a signal from said sensor.

54. The terminal according to claim 51, wherein a medicine and a timing at which the parameter is changed are stored in said storage means in association with each other.

55. The terminal according to claim 51, wherein the parameter includes a discharging speed of the droplets.

56. The terminal according to claim 51, wherein the parameter includes a driving frequency.

57. The terminal according to claim 51, wherein the parameter includes a size of the droplet.

58. The terminal according to claim 51, wherein the parameter includes a main droplet/sub-droplet ratio of the droplets.

59. The terminal according to claim 51, wherein the parameter includes a discharge scheme.

60. The terminal according to claim 51, wherein said inhaler comprises a discharge head for discharging a  
5 medicine by using heat energy.

61. The terminal according to claim 51, wherein said storage means is a detachable memory card.

62. A method of driving an inhaler of a portable terminal which is arranged to be carried by a user,  
10 comprising the steps of:

providing storage means for storing personal information about the user, including information about a clinical chart of the user and prescription, and an inhaler for discharging a medicine in the form of fine  
15 droplets and making the user inhale the droplets, with the portable terminal; and

changing a parameter associated with discharging of the medicine within a predetermined period of time in which the user executes the inhalation so as to  
20 enable the user to efficiently inhale the medicine in accordance with the information of the prescription.

63. The method according to claim 62, wherein the medicine is discharged in a plurality of steps within the predetermined period of time in which the  
25 inhalation is executed.

64. The method according to claim 62, wherein an inhalation rate of the user is detected, and the



parameter is changed in accordance with the detected inhalation rate.

65. The method according to claim 62, wherein a medicine and a timing at which the parameter is changed  
5 are stored in the storage means in association with each other.

66. The method according to claim 62, wherein the parameter includes a discharging speed of the droplets.

67. The method according to claim 62, wherein the  
10 parameter includes a driving frequency.

68. The method according to claim 62, wherein the parameter includes a size of the droplet.

69. The method according to claim 62, wherein the parameter includes a main droplet/sub-droplet ratio of  
15 the droplets.

70. The method according to claim 62, wherein the parameter includes a discharge scheme.

71. A prescription determination support system including:

20 a memory card storing personal information including information about a clinical chart of each user and prescription;

a database having medical information storage means storing information about correspondence between  
25 a symptom and a medicine prescription; and

a medical facility terminal which is installed in each medical facility, has a slot in which said memory

card is inserted, and is connected to said database through a predetermined line, the prescription determination support system being adapted to support determination of a prescription for the user carrying  
5 said memory card at said medical facility terminal,

wherein when said memory card of the user is inserted into said medical facility terminal, said terminal presents information about a prescription suitable for the user and a medicine to be administered  
10 on the basis of the personal information about the user and the information stored in said medical information storage means.

72. The system according to claim 71, wherein when the user has a plurality of symptoms and there are a  
15 plurality of prescriptions suitable for the user and medicines to be administered, said medical facility terminal presents each of the prescriptions and each of the medicines to be administered, together with a corresponding one of the symptoms.

20 73. The system according to claim 71, wherein when the user has a plurality of symptoms and there are a plurality of prescriptions suitable for the user and medicines to be administered, said medical facility terminal presents the respective prescriptions and the  
25 respective medicines to be administered in descending order of expected effect.

74. The system according to claim 71, wherein the

personal information includes information about DNA,  
and said medical facility terminal presents the  
information about the prescription and medicine to be  
administered on the basis of the information.

5 75. The system according to claim 71, wherein the  
personal information includes authentication data of  
each user, and access to the personal information is  
permitted when personal authentication is performed on  
the basis of the authentication data.

10 76. A prescription determination support method of  
supporting determination of a prescription for a user  
carrying a memory card at a medical facility terminal  
by using:

the memory card storing personal information  
15 including information about a clinical chart of each  
user and prescription;

a database having medical information storage  
means storing information about correspondence between  
a symptom and a medicine prescription; and

20 the medical facility terminal which is installed  
in each medical facility, has a slot in which the  
memory card is inserted, and is connected to the  
database through a predetermined line,

wherein said method comprises the step of  
25 presenting information about a prescription suitable  
for the user and a medicine to be administered on the  
basis of the personal information about the user and

the information stored in the medical information storage means, when the memory card of the user is inserted into the medical facility terminal.

77. The method according to claim 76, wherein when  
5 the user has a plurality of symptoms and there are a plurality of prescriptions suitable for the user and medicines to be administered, each of the prescriptions and each of the medicines to be administered are presented, together with a corresponding one of the  
10 symptoms.

78. The method according to claim 76, wherein when the user has a plurality of symptoms and there are a plurality of prescriptions suitable for the user and medicines to be administered, the respective  
15 prescriptions and the respective medicines to be administered are presented in descending order of expected effect.

79. The method according to claim 76, wherein the personal information includes information about DNA,  
20 and the information about the prescription and medicine to be administered are presented on the basis of the information.

80. The method according to claim 76, wherein the personal information includes authentication data of  
25 each user, and access to the personal information is permitted when personal authentication is performed on the basis of the authentication data.

81. A computer program for implementing the prescription determination support method through a computer, by using:

the memory card storing personal information  
5 including information about a clinical chart of each user and prescription;

a database having medical information storage means storing information about correspondence between a symptom and a medicine prescription; and

10 the medical facility terminal which is installed in each medical facility, has a slot in which the memory card is inserted, and is connected to the database through a predetermined line,

wherein said computer program includes program  
15 codes for implementing the step of presenting information about a prescription suitable for the user and a medicine to be administered, on the basis of the personal information about the user and the information stored in the medical information storage means, when  
20 the memory card of the user is inserted into the medical facility terminal.

82. A storage medium for storing a program code for implementing the prescription determination support method by using:

25 the memory card storing personal information including information about a clinical chart of each user and prescription;

a database having medical information storage means storing information about correspondence between a symptom and a medicine prescription; and

the medical facility terminal which is installed  
5 in each medical facility, has a slot in which the memory card is inserted, and is connected to the database through a predetermined line,

wherein said storage medium stores program codes for implementing the step of presenting information  
10 about a prescription suitable for the user and a medicine to be administered, on the basis of the personal information about the user and the information stored in the medical information storage means, when the memory card of the user is inserted into the  
15 medical facility terminal.

83. An inhaler for discharging a medicine in the form of fine droplets and enabling a user to inhale the medicine, comprising:

storage means storing personal information about  
20 the user including information about a prescription for the user;

a tank which contains the medicine and has a code for identifying a type of contained medicine;

a discharge head for discharging a medicine  
25 supplied from said tank in the form of fine droplets; and

discharge permission means for permitting

operation of said discharge head only when a collation result on the medicine contained in said tank and a medicine written on the prescription indicates coincidence upon reading the code.

5 84. The inhaler according to claim 83, wherein said tank and said discharge head are integrally formed.

85. The inhaler according to claim 83, wherein said discharge permission means inhibits operation of said discharge head with respect to a usage pattern  
10 different from a formula written in the prescription.

86. The inhaler according to claim 83, further comprising input means, and said discharge permission means permits operation of said discharge head only when the information stored in said storage means  
15 coincides with the information input from said input means.

87. The inhaler according to claim 83, further comprising an authentication sensor for performing biometrical authentication with respect to the user,  
20 and said discharge permission means permits operation of said discharge head only when a biometrical characteristic of the user stored in said storage means coincides with information from said authentication sensor.

25 88. The inhaler according to claim 83, wherein the code is electrically readable.

89. The inhaler according to claim 83, wherein the

code is optically readable.

90. The inhaler according to claim 83, further comprising means for inhibiting reuse of said tank when inhaling operation is performed a predetermined number  
5 of times.

91. The inhaler according to claim 83, further comprising means for inhibiting reuse of said discharge head when inhaling operation is performed a predetermined number of times.

10 92. A discharge head control method for an inhaler being provided with storage means for storing personal information about a user including information about a prescription for the user, a tank which contains the medicine and has a code for identifying a type of  
15 contained medicine, and a discharge head for discharging a medicine supplied from the tank in the form of fine droplets,

wherein said method comprises the steps of:

collating the medicine contained in the tank with  
20 a medicine written on the prescription upon reading the code; and

enabling operation of the discharge head only when the collation result indicates coincidence of the both.

25 93. The method according to claim 92, further comprising the step of inhibiting the operation of the discharge head with respect to a usage pattern



different from a formula written in the prescription.

94. The method according to claim 92, wherein the inhaler further comprises input means, and said method further comprises the step of permitting the operation  
5 of the discharge head only when the information stored in the storage means coincides with the information input from the input means.

95. The method according to claim 92, wherein the inhaler further comprises an authentication sensor for  
10 performing biometrical authentication with respect to the user, and said method further comprises the step of permitting the operation of the discharge only when a biometrical characteristic of the user stored in the storage means coincides with information from the  
15 authentication sensor.

96. The method according to claim 92, further comprising the step of inhibiting reuse of the tank when inhaling operation is performed a predetermined number of times.

97. The method according to claim 92, further comprising the step of inhibiting reuse of the discharge head when inhaling operation is performed a predetermined number of times.

98. A computer program for implementing the discharge  
25 head control method, said inhaler being provided with storage means for storing personal information about a user including information about a prescription for the

user, a tank which contains the medicine and has a code for identifying a type of contained medicine, and a discharge head for discharging a medicine supplied from the tank in the form of fine droplets,

5            wherein said computer program comprises program codes for implementing the steps of:

             collating the medicine contained in the tank with a medicine written on the prescription upon reading the code; and

10           enabling operation of the discharge head only when the collation result indicates coincidence of the both.

99.    A storage medium for storing a program code for implementing the discharge head control method, said  
15    inhaler being provided with storage means for storing personal information about a user including information about a prescription for the user, a tank which contains the medicine and has a code for identifying a type of contained medicine, and a discharge head for  
20    discharging a medicine supplied from the tank in the form of fine droplets,

             wherein said storage medium stores program codes for implementing the steps of:

             collating the medicine contained in the tank with  
25    a medicine written on the prescription upon reading the code; and

             enabling operation of the discharge head only

[illegible]